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AMSAT NEWS SERVICE
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The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, the Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on https://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to: ans-editor [at] amsat.org

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see: https://mailman.amsat.org/postorius/lists/ans.amsat.org/

ANS-323 AMSAT News Service Weekly Bulletins

To: All RADIO AMATEURS
From: Radio Amateur Satellite Corporation
712 H Street NE, Suite 1653
Washington, DC 20002

DATE 2023 NOV 19

2023 AMSAT Space Symposium & Annual General Meeting Proceedings Now Available

AMSAT has announced that the 2023 AMSAT Space Symposium & Annual General Meeting Proceedings are now available online. AMSAT members may access both the Symposium Proceedings and Presentations by logging into their AMSAT Membership and Event Portal account (https://launch.amsat.org/), selecting 'Member Resources' from the options on the top of the page, and then 'AMSAT Symposium Proceedings'. Click on the '2023' box to the left of 'Irving, Texas - Sheraton DFW...' to access this year's Symposium Proceedings or the 'Presentations' box to the right of this line to access the Presentations slides in Adobe Acrobat PDF format. For a real blast from the past, check out Symposium Proceedings going all the way back to 1986 under the same 'AMSAT Symposium Proceedings' webpage. Direct links to the Symposium Proceedings, Presentations, and YouTube livestreams were also recently mailed to AMSAT members and are also included below for your convenience.

2023 AMSAT Symposium Proceedings:
https://launch.amsat.org/resources/Documents/Proceedings/AMSAT_Proceedings_2023.pdf

2023 AMSAT Symposium Presentations:
https://launch.amsat.org/resources/Documents/Proceedings/AMSAT_Presentations_2023.pdf

2023 AMSAT Symposium Livestream Day One:
https://www.youtube.com/watch?v=pcO4-h7bbxs

2023 AMSAT Symposium Livestream Day Two:
https://www.youtube.com/watch?v=DzKKHTBxyY8

Thank you to all who attended the 2023 AMSAT Space Symposium & Annual General Meeting. We hope you had a great time at this year's event and look forward to seeing you next fall in Florida. If you could not make it to Texas this year, we hope to see you next year!

[ANS thanks AMSAT for the above information]

SpaceX Launches Ninth Rideshare Mission: Over 100 Satellites Deployed with Falcon 9

In another milestone for SpaceX's rideshare program, the aerospace company successfully launched its ninth dedicated smallsat rideshare mission, dubbed Transporter-9, from Vandenberg Space Force Base in California on November 11.

The Falcon 9 rocket carrying the payload lifted off at 18:49 UTC (10:49 p.m. PST), with the booster making a return to the launch site approximately seven and a half minutes after liftoff. This particular booster had already seen action on eleven previous missions, including Transporter-8 back in June.

The mission, lasting around half an hour, saw the deployment of 90 payloads, though initial confirmations of successful deployment were lacking for several satellites. Those payloads included several orbital transfer vehicles that will later deploy their satellites. Overall, the launch added more than 110 satellites to the ever-growing constellation in low Earth orbit.

Leading the pack in terms of payload contributions was Planet, with 36 of its Dove imaging CubeSats, collectively named Flock 4Q. It also flew Pelican-1, a tech demo satellite for its future Pelican and Tanager high-resolution and hyperspectral imaging satellites.

Spire, specializing in weather and vessel tracking data, joined other satellite constellation operators on Transporter-9. Their satellite set featured three GHGSat satellites, one of which became the first commercial satellite dedicated to tracking carbon dioxide emissions. Additionally, synthetic aperture radar imaging companies Iceye and Umbra were among the participants in this rideshare mission.

A notable newcomer to the satellite scene on this mission was Foxconn, the Taiwanese electronics giant known for producing consumer electronics like Apple's iPhone. Foxconn, also known as Hon Hai Technology Group, sent its first two CubeSats, Pearl-1H and Pearl-1C, on the mission to explore LEO (Low Earth Orbit) satellite broadband communications and beyond 5G capabilities.

Exolaunch, a rideshare broker, facilitated the launch of nearly three dozen satellites, including Foxconn's, on Transporter-9. Other brokers such as Maverick Space Systems, SEOPS, and Momentus, also contributed payloads to the mission.

D-Orbit, a frequent participant in Transporter missions, contributed their ION Satellite Carrier to the payload. Two new orbital transfer vehicle (OTV or space tug) developers, Exotrail and Impulse Space, flew their first space tugs, spacevan-001 and Impulse-1, on the mission. These space tugs play a crucial role in transferring spaceborne cargo between different orbits.

Transporter missions have garnered mixed reactions within the commercial space industry. While satellite operators and rideshare brokers applaud their regular and cost-effective access to space, some developers of small launch vehicles argue that these missions undercut their business models by offering services at significantly lower per-kilogram costs.

Despite the ongoing debate, SpaceX's Transporter services continue to attract strong demand, as evidenced by the fully booked schedule. The company recently introduced a new line of rideshare missions called Bandwagon, scheduled to begin in 2024, further solidifying its position as a dominant force in the commercial space launch sector. The earliest available opportunity for a Bandwagon mission is set for November 2024, with Transporter missions to sun-synchronous orbits already booked until October 2025.

[ANS thanks Jeff Foust, SpaceNews, for the above information]

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5kbps GFSK SSDV will position ROM-3 as a notable contributor to the amateur radio community. More details are available at ROMSpace's official website https://rom-space.ro/. This success builds on their prior achievement with the ROM-2 satellite and serves as a demonstration mission for upcoming pico-satellite constellations.

The collaborative efforts of RomSpace, Alba Orbital, and the broader Romanian space community culminate in the ROM-3 mission, showcasing not only the country's growing prowess in space exploration but also a commitment to fostering technical education and outreach initiatives. As ROM-3 embarks on its operational phase, it stands as a testament to Romania's potential in the evolving landscape of space technology.

[ANS thanks Alba Orbital and the IARU for the above information]

Veronika: Spacemanic's Pink CubeSat Successfully Launches Aboard SpaceX Transporter-9

Veronika, a 1U CubeSat designed and built by Spacemaniac, was launched on SpaceX's Transporter-9 mission on November 11th. This mission marked the third Slovak satellite to venture into space following the successful skCube and GRBAlpha missions.

Boris Procik, a financier from Slovakia, had approached Spacemanic to construct and launch the CubeSat, making it the first "family satellite" of its kind. Veronika, named after Procik's daughter, went beyond being a CubeSat with a personal touch; it was a technologically advanced mission designed to support the Slovak and international amateur radio community.

The CubeSat features an array of technical capabilities to serve its primary objectives: 9k6 G3RUH AX.25 telemetry, digipeater, CW beacon, and experimental SSDV transmissions. The IARU coordinated downlink frequency is 436.680 MHz. Satellite telemetry was reported just a few hours after separation from the Falcon 9 rocket. Telemetry data can be viewed on the SatNOGS Veronika Telemetry Dashboard at https://dashboard.satnogs.org/d/abEVHMIIk/veronika.

The CubeSat is also equipped with a novel Attitude Determination and Control System (ADCS) subsystem. The ADCS includes electromagnetic actuators and a GNSS receiver, which will facilitate precise satellite identification during its initial days and weeks in orbit. Veronika will be operated by an amateur radio club OM3KSI, which will actively participate in its mission: https://om3ksi.tuke.sk/en/home/.

Veronika's mission extends beyond technical objectives, incorporating education and outreach efforts. The satellite plans to engage Slovak grammar and high schools, transmitting special CW and AX.25 messages on various occasions. Czech partners, PLANETUM - Prague Observatory and Planetarium, will also use the satellite for educational purposes.

In an unconventional move, Veronika was not only the first-ever family-named satellite but also the first-ever pink satellite, adding a personal and distinctive touch to its appearance. The project received additional support from Deutsche Schule Bratislava, with the initial contact facilitated by the Slovak Space Office.

Before its successful launch, Veronika underwent rigorous environmental testing to simulate the harsh conditions of space, ensuring its operational resilience throughout its mission. The CubeSat joined other payloads in Berlin, where it underwent preparations for deployment. Exolaunch, a trusted partner of Spacemanic, oversaw the deployment process, securing its attachment to the Falcon 9 rocket.

[ANS thanks Spacemanic and the IARU for the above information]

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Satellite Top 100 Rovers November 2023 Rankings

The November 2023 rankings for the Top 100 Rovers (Mixed LEO/MEO/GEO) in satellite operations, as determined by @GridMasterMap on Twitter, has been released. The ranking is determined by the number of grids and DXCC entities activated, taking into account only those grids where a minimum number of QSOs logged on the gridmaster.fr website have been validated by a third party. Grid numbers do not directly reflect the exact number of activations. Satellite operators are encouraged to upload their LoTW satellite contacts to https://gridmaster.fr in order to provide more accurate data.

Updated: 2023-11-06

1	ND9M	26	UT1FG	51	AD7DB	76	YU0W
2	NJ7H	27	KE4AL	52	KE9AJ	77	W8LR
3	N5UC	28	LU5ILA	53	JL3RNZ	78	VE3GOP
4	JA9KRO	29	KI7UNJ	54	VE1CWJ	79	OE3SEU
5	DL6AP	30	VE3HLS	55	KM4LAO	80	CU2ZG
6	WI7P	31	KB5FHK	56	N4UFO	81	N0TEL
7	HA3FOK	32	LA9XGA	57	SM3NRY	82	K0FFY
8	N9IP	33	DL2GRC	58	VK5DG	83	KB2YSI
9	WY7AA	34	N7AGF	59	KI7QEK	84	KJ7NDY
10	N6UA	35	F4BKV	60	N8RO	85	DL4EA
11	AD0DX	36	XE3DX	61	VA7LM	86	VE6WK
12	W5PFG	37	N6DNM	62	PT2AP	87	PA3GAN
13	K5ZM	38	KE0PBR	63	W1AW	88	AF5CC
14	DP0POL	39	KE0WPA	64	AA8CH	89	HB9GWJ
15	AK8CW	40	JO2ASQ	65	M1DDD	90	VE7PTN
16	AD0HJ	41	K7TAB	66	VE1VOX	91	PT9ST
17	WD9EWK	42	AC0RA	67	VA3VGR	92	DK9JC
18	ON4AUC	43	W7WGC	68	XE1ET	93	JM1CAX
19	KG5CCI	44	PR8KW	69	FG8OJ	94	KG4AKV
20	ND0C	45	JK2XXK	70	KI7UXT	95	VO2AC
21	KX9X	46	EA4NF	71	PT9BM	96	LW2DAF
22	DJ8MS	47	AA5PK	72	LU4JVE	97	KI0KB
23	F5VMJ	48	EB1AO	73	DF2ET	98	N6UTC
24	N5BO	49	SP5XSD	74	WA9JBQ	99	KC7JPC
25	K8BL	50	F4DXV	75	N4DCW	100	A41ZZ

[ANS thanks @GridMasterMap for the above information]

Changes to AMSAT-NA TLE Distribution for November 17, 2023

Two Line Elements or TLEs, often referred to as Keplerian elements or keps in the amateur community, are the inputs to the SGP4 standard mathematical model of spacecraft orbits used by most amateur tracking programs. Weekly updates are completely adequate for most amateur satellites. TLE bulletin files are updated daily in the first hour of the UTC day. New bulletin files will be posted immediately after reliable elements become available for new amateur satellites. More information may be found at https://www.amsat.org/keplerian-elements-resources/.

The following satellite has been removed from this week's AMSAT-NA TLE distribution:

DO-64 NORAD Cat ID 32789 Decayed from orbit on or about 14 November 2023.

The following satellite has been renamed:

SO-120 NORAD Cat ID 56992 Renamed after AMSAT Oscar designation.

[ANS thanks AMSAT Orbital Elements page for the above information]

ARISS NEWS

Amateurs and others around the world may listen in on contacts between amateurs operating in schools and allowing students to interact with astronauts and cosmonauts aboard the International Space Station. The downlink frequency on which to listen is 145.800 MHz worldwide.

+ Recently Completed

New Heights School & Learning Services, Calgary, AB, Canada, telebridge via IK1SLD
The ISS callsign was OR4ISS
The scheduled crewmember was Andreas Mogensen, KG5GCZ
The ARISS mentor was VE6JBJ
Contact was successful: Fri 2023-11-17 17:06:13 UTC

+ Upcoming Contacts

National Research Nizhny Novgorod State University, Nizhny, Novgorod, Russia, direct via TBD
The ISS callsign is presently scheduled to be RSØISS
The scheduled crewmember is Konstantin Borisov
The ARISS mentor is RV3DR
Contact is go for Wed 2023-11-22 16:40 UTC

The crossband repeater continues to be active (145.990 MHz up {PL 67} & 437.800 MHz down). If any crewmember is so inclined, all they have to do is pick up the microphone, raise the volume up, and talk on the crossband repeater. So give a listen, you just never know.

The packet system is also active (145.825 MHz up & down).

As always, if there is an EVA, a docking, or an undocking; the ARISS radios are turned off as part of the safety protocol.

Note, all times are approximate. It is recommended that you do your own orbital prediction or start listening about 10 minutes before the listed time.

The latest information on the operation mode can be found at
https://www.ariss.org/current-status-of-iss-stations.html

The latest list of frequencies in use can be found at https://www.ariss.org/contact-the-iss.html

[ANS thanks Charlie Sufana, AJ9N, one of the ARISS operation team mentors for the above information]

Upcoming Satellite Operations

A growing number of satellite rovers are currently engaged in sharing their grid square activations on https://hams.at. By visiting the website, you gain easy access to comprehensive information about the operators responsible for activating specific grid squares. Additionally, you have the ability to assess the match score between yourself and a particular rover for a given pass, while also being able to identify the upcoming satellite passes that are accessible from your location.

[ANS thanks Ian Parsons, K5ZM, AMSAT rover page manager, for the above information]

Hamfests, Conventions, Maker Faires, and Other Events

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

+ 40th Anniversary Celebration of the Positive Impact of Amateur Radio on Human Spaceflight
Thursday February 22nd through Saturday February 24th, 2024
Center for Space Education: Astronauts Memorial Foundation
Kennedy Space Center, M6-306 405 State Road, FL 32899
https://www.ariss.org/overview.html

[ANS thanks the AMSAT Events page for the above information]

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priced at $100. It's designed for various weather satellites operating at 1.69 GHz and features a built-in LNA and filter, minimizing noise figure loss. The Qorvo QPL9547 amplifier boosts weak signals. The prototype will be replaced by a neater version after crowdfunding. The dish is versatile, supporting radio astronomy with a 1.42 GHz hydrogen line feed and Inmarsat feed for signals in the 1525 - 1559 MHz bands. Its lightweight design makes it suitable for light-duty antenna rotators, and cabling is simplified. Discovery Dish is compatible with open-source software for satellite decoding. Future plans include tutorials and a lightweight antenna rotator. Comparisons highlight its advantages in price, size, and suitability for a rotator. Manufacturing involves crowdfunding, stamping molds, and production of PCB feeds. Mouser Electronics handles fulfillment. Additional information can be found at https://www.crowdsupply.com/krakenrf/discovery-dish. (ANS thanks Crowd Supply for the above information)

Join AMSAT today at https://launch.amsat.org/

In addition to regular membership, AMSAT offers membership to:

* Societies (a recognized group, clubs or organization).
* Primary and secondary school students are eligible for membership at one-half the standard yearly rate.
* Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status.
* Memberships are available for annual and lifetime terms.

Contact info [at] amsat.org for additional membership information.

73 and remember to help Keep Amateur Radio in Space!

This week's ANS Editor, Mitch Ahrenstorff, ADØHJ
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